

Application No. 10/083,405
Reply dated March 22, 2005
Response to Office Action of September 22, 2004

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AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (previously presented) An adaptive cruise control apparatus for a vehicle, comprising

means for sensing a speed of the vehicle,

means for detecting an inter-vehicle distance between the vehicle and a preceding vehicle,

means for accelerating/decelerating the first-mentioned vehicle,

means for detecting a traveling environment,

a control means for performing an ACC in which

the first-mentioned vehicle is controlled so as to maintain a present cruise speed when the inter-vehicle distance is greater than a set value, and

the first-mentioned vehicle is controlled so as to maintain the inter-vehicle distance at a predetermined value when the inter-vehicle distance is less than the set value,

wherein

said control means cancels said ACC when a driver performs a predetermined operation while the ACC is performed, and

said control means resumes said ACC with a new cruise speed which is set depending upon a traveling environment when a driver stops said predetermined operation.
2. (original) An adaptive cruise control apparatus for a vehicle comprising means for sensing a speed of the vehicle, means for detecting a distance between the vehicle

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and a preceding vehicle, means for accelerating/decelerating the first-mentioned vehicle, and means for detecting a traveling environment, in which when the distance between the first-mentioned vehicle and the preceding vehicle is greater than the set value, a preset cruise speed is maintained whereas when the distance between the first-mentioned vehicle and the preceding vehicle is less than the set value, the distance is maintained at a predetermined value and a range of vehicle speeds to be controlled is limited, and in which, responsive to the speed of the first-mentioned vehicle increasing to come into the range of vehicle speeds immediately after the ACC is canceled due to the speed of the first-mentioned vehicle being decreased by deceleration of the preceding vehicle to thereby come out of the range of vehicle speeds during control of the distance between the first-mentioned vehicle and the preceding vehicle, a cruise speed is selected depending upon a traveling environment to be encountered at that time to automatically resume the ACC.

3. (previously presented) An adaptive cruise control apparatus for a vehicle comprising means for sensing a speed of the vehicle, means for detecting a distance between the vehicle and a preceding vehicle, means for accelerating/decelerating the first-mentioned vehicle, and means for detecting a traveling environment, in which when the distance between the first-mentioned vehicle and the preceding vehicle is greater than the set value, a preset cruise speed is controlled to be maintained whereas when the distance between the first-mentioned vehicle and the preceding vehicle is less than the set value, the distance is controlled to be maintained at a predetermined value and a range of vehicle speeds to be controlled is limited, said ACC being cancelled when a driver performs a predetermined operation under the ACC,

wherein a cruise speed is selected depending upon a traveling environment to be encountered when the driver stops the predetermined operation and the ACC is automatically resumed under the selected cruise speed, and

wherein when the speed of the first-mentioned vehicle increases to come into the range of vehicle speeds after the ACC is canceled due to the speed of the first-mentioned vehicle being decreased by deceleration of the preceding vehicle to thereby come out of the range of vehicle speeds under control of the distance between the first-mentioned vehicle and

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the preceding vehicle, a cruise speed is selected depending upon a traveling environment to be encountered at that time to automatically resume the ACC under the selected cruise speed.

4. (cancelled)

5. (original) An ACC system for a vehicle in which, responsive to a driver of the vehicle stopping the foot-brake operation after the driver decreases its speed to 10-40 km/h by performing a foot-brake operation during traveling at a speed of 60-100 km/h in the ACC, the ACC is maintained in a deceleration of 0-0.1 G and cancelled in a deceleration of 0.3 G.

6. (original) The ACC system according to claim 5, wherein the set cruise speed in the ACC is changed to a value other than that set before the foot brake operation was performed.

7. (previously presented) An ACC system for a vehicle in which said ACC is cancelled when a driver performs a predetermined operation under the ACC, wherein even when the driver performs a foot brake operation during traveling at a speed of 0-20 km/h in ACC, the ACC is maintained or automatically resumed.

8. (original) The ACC system according to claim 7, wherein the set cruise speed in the ACC is changed to a value other than that set before the foot brake operation was performed.

9. (original) An ACC system for a vehicle, wherein, responsive to the driver stopping an accelerator operation after increasing the vehicle speed to 125 km/h by performing the accelerator operation during traveling at a speed of 60-100 km/h, the ACC is maintained or automatically resumed.

10. (original) The ACC system according to claim 9, wherein the set cruise speed in the ACC is changed to a value other than that set before the foot brake operation was performed.

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11. (original) An ACC system for a vehicle in which ACC is maintained or automatically resumed when the driver shifts up and cancelled when the driver shifts down, during traveling at a speed of 60-100 km/h in the ACC.

12. (original) An ACC system for a vehicle in which ACC is maintained responsive to a driver turning a steering wheel through 0-10 degrees from a neutral position and cancelled responsive to the driver turning the steering wheel through 45 degrees or more.

13. (original) An ACC system for a vehicle in which when the driver performs a turn-signal operation in ACC, the ACC is maintained at a vehicle speed of 80-100 km/h and cancelled at a vehicle speed of 20-40 km/h.

14. (cancelled)

15. (currently amended) An adaptive cruise control (ACC) system for a vehicle, the system having an ACC function and comprising:

means for sensing a speed of the vehicle;

means for detecting a distance between the vehicle and a preceding vehicle;

and

means for detecting a traveling environment,

wherein, said ACC function is cancelled when a driver performs a predetermined operation while the ACC function is operated, and the ACC function is resumed with selecting a new cruise speed, as a speed limit of the ACC function, depending upon a traveling environment, and

~~The ACC system according to claim 14,~~ wherein a range of vehicle speeds in which a desired cruise speed is settable is provided, and wherein, responsive to the speed of the first-mentioned vehicle obtained by said vehicle speed detecting means coming into the range of vehicle speeds after coming out of the range of vehicle speeds to thereby cancel the ACC, a cruise speed is selected based on a traveling environment to be encountered at that time; and the ACC automatically in which the cruise speed is an upper limit is resumed.

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16. (original) The ACC system according to claim 15, wherein the range of vehicle speeds overlaps with a second range of vehicle speeds defined between a first value to which the speed of the first-mentioned vehicle obtained by said vehicle speed detecting means comes out of the first-mentioned range of vehicle speeds and a second value to which the speed of said first-mentioned vehicle obtained by said vehicle speed detecting means comes into the first-mentioned range of vehicle speeds.

17. (currently amended) An adaptive cruise control (ACC) system for a vehicle, the system having an ACC function and comprising:

means for sensing a speed of the vehicle;

means for detecting a distance between the vehicle and a preceding vehicle;

and

means for detecting a traveling environment,

wherein, said ACC function is cancelled when a driver performs a predetermined operation while the ACC function is operated, and the ACC function is resumed with selecting a new cruise speed, as a speed limit of the ACC function, depending upon a traveling environment, and

~~The ACC system according to claim 14;~~ wherein the traveling environment detecting means comprises at least one of:

a plurality of switches one of which is to be selected by the driver;

means based on a vehicle speed;

means based on map information for car navigation (including GPS information);

means based on information such as road traffic information or automatic toll reception information received by the vehicle with the aid of radio-wave or optical means from an infrastructure;

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means based on a position of a gear;

a wiper actuated switch; and

means based on a processed image signal from a camera.

18-19. (cancelled)

20. (previously presented) An adaptive cruise control apparatus according to Claim 1, wherein said predetermined operation by said driver does not include an operation of a cancel switch or a main switch.

21. (previously presented) An adaptive cruise control apparatus according to Claim 3, wherein said predetermined operation by said driver does not include an operation of a cancel switch or a main switch.

22. (new) An adaptive cruise control apparatus for a vehicle, comprising:

means for sensing a speed of the vehicle;

means for detecting a distance between the vehicle and a preceding vehicle;

means for accelerating/decelerating the first-mentioned vehicle; and

means for detecting a traveling environment;

wherein when the distance between the first-mentioned vehicle and the preceding vehicle is greater than a set value, a preset cruise speed is set to a desired speed, and when the distance between the first-mentioned vehicle and the preceding vehicle is less than the set value, the distance is maintained at a predetermined value, and

wherein a speed at the time of the cancellation of the adaptive cruise control by a braking operation is set as a cruise speed when the adaptive cruise control is resumed from temporary cancellation by the braking operation.

23. (new) The adaptive cruise control apparatus according to Claim 22,

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wherein a speed before cancellation by the braking operation is set as a cruise speed when the adaptive cruise control is resumed from temporary cancellation, that the vehicle travels except on highway is detected by the means for detecting a traveling environment.

24. (new) An adaptive cruise control apparatus for a vehicle, comprising:

means for sensing a speed of the vehicle;

means for detecting a distance between the vehicle and a preceding vehicle;

means for accelerating/decelerating the first-mentioned vehicle; and

means for detecting a traveling environment;

wherein when the distance between the first-mentioned vehicle and the preceding vehicle is greater than a set value, a preset cruise speed is set to a desired speed, and when the distance between the first-mentioned vehicle and the preceding vehicle is less than the set value, the distance is maintained at a predetermined value, and

wherein after the adaptive cruise control has been cancelled as a result of a driver's stepping on the accelerator pedal to accelerate and a speed after acceleration has been maintained for a predetermined time, the adaptive cruise control is resumed from the cancellation and the maintained speed is set as a new cruise speed.

25. (new) The adaptive cruise control apparatus according to Claim 24,

wherein after the adaptive cruise control is resumed, the cruise speed before the driver stepping on the accelerator pedal to accelerate is maintained, when the means for detecting a traveling environment detects that the vehicle travels a non-highway.

26. (new) An adaptive cruise control apparatus for a vehicle, comprising:

means for sensing a speed of the vehicle;

means for detecting a distance between the vehicle and a preceding vehicle;

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means for accelerating/decelerating the first-mentioned vehicle; and

means for detecting a traveling environment;

wherein when the distance between the first-mentioned vehicle and the preceding vehicle is greater than a set value, a preset cruise speed is set to a desired speed, and when the distance between the first-mentioned vehicle and the preceding vehicle is less than the set value, the distance is maintained at a predetermined value, and

wherein the adaptive cruise control is resumed after temporary cancellation after the driver stepping on the accelerator pedal to accelerate, a speed at the time of cancellation by the driver stepping on the accelerator pedal to accelerate is set as a cruise speed, if the adaptive cruise control is cancelled by driver stepping on the accelerator pedal to accelerate and the driver steps on the accelerator pedal to accelerate during temporary cancellation.

27. (new) An adaptive cruise control apparatus for a vehicle, comprising:

means for sensing a speed of the vehicle;

means for detecting a distance between the vehicle and a preceding vehicle;

means for accelerating/decelerating the first-mentioned vehicle; and

means for detecting a traveling environment;

wherein when the distance between the first-mentioned vehicle and the preceding vehicle is greater than a set value, a preset cruise speed is set to a desired speed, and when the distance between the first-mentioned vehicle and the preceding vehicle is less than the set value, the distance is maintained at a predetermined value,

wherein the means for detecting a traveling environment detects at least one of driver's selecting switch information, car navigation information, information received by the vehicle with the aid of radio-wave or optical means from an infrastructure, information on a position of a gear, information on a wiper actuated switch, and information on a processed image signal from camera, and

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wherein a travel environment after resumption from temporary cancellation is detected by the means for detecting a travel environment, and an upper cruise speed is set depending upon the detected travel environment, after the adaptive cruise control is resumed from temporary cancellation caused by the driver's predetermined operation.

28. (new) The adaptive cruise control apparatus according to Claim 27,

wherein the driver predetermined operation is one of a braking operation, an accelerator operation, a shift-up/down operation, a steering operation, and a turn-signal operation.

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